

## ABSTRACT

An aerator that allows the operator to make a turn with the machine while the tines are still in contact with the turf through the use of a differential shaft and brakes that enhance the maneuverability of the machine. The aerator is fitted with a mechanical gear type differential on an intermediate drive shaft that provides for automatic, separate and variable rotational motion of the individual halves of the tine shaft. This differential apparatus also provides constant and equal torque application to both sides of the tine wheel assembly simultaneously while the machine is operating. This insures that tine penetration into the turf is equal on both sides at all times. The tine shaft halves are designed and mounted in such manner as to allow each half (left and right sides) to be driven by separate chains from the differential shaft. This design results in a desired variation in the speed of rotation of the two halves that facilitates turning the unit. The differential mechanism is also functional in driving the transport rollers at the front of the machine. The improved aerator is also fitted with brakes installed on each side of the unit which can reduce the speed of rotation of the separate tine wheel halves and the individual drive rollers on the front of the unit, thus increasing the steering efficiency and a spring-actuated lift assist to help the operator raise the unit into the transport position. The aerator includes heavy duty springs on both sides of the unit to apply equal forces to both of the transport wheel lift members. A release mechanism operated from the handle bar is provided to allow the operator to disengage the retaining latches, which will allow these springs to pull the transport wheels under the unit thus raising the tine shaft halves. The aerator also incorporates drums of sufficient mass so as to not require the addition of water or other additional weighting methods.